

October 2019

Welcome to this quarter's issue of *Value Added*.

The Center for Value-Based Care Research (CVCR) conducts novel research on interventions that improve value in healthcare by increasing quality and/or decreasing costs. With a mission of making quality healthcare possible for all Americans by conducting research to identify value in healthcare, CVCR seeks to deliver the right care, at the right time, to the right patients, at lower costs.

In this issue, we report on two of our recent research initiatives.

Dr. Matthew Pappas discusses his work on "Resuming Anticoagulation following Upper Gastrointestinal Bleeding among Patients with Nonvalvular Atrial Fibrillation—A Microsimulation Analysis" and how it serves a role in understanding when to resume anticoagulants after intracranial hemorrhage. This issue also discusses the recent \$3 million dollar grant awarded to Dr. Glen Taksler to study preventative primary care services and how their benefits can be maximized in middle-aged patients throughout the United States. We hope you enjoy this quarter's highlighted news.



PEDIATRICS

Featured Publication

Patient Satisfaction and Antibiotic Prescribing for Respiratory Infections by Telemedicine.

C.B. Foster, K.A. Martinez, C. Sabella, G.P. Weaver, M.B. Rothberg

August, 2019

Featured Study: Safely Resuming Anticoagulants



Net clinical benefit of anti-coagulation for atrial fibrillation following intracerebral hemorrhage.

Matthew A Pappas, MD, MPH
and James F Burke, MD, MPH

Vascular Medicine

You've already studied when to resume anticoagulation after GI bleeds. What's different about intracranial hemorrhages?

There are a few big differences. First, most of the death and disability from anticoagulation comes from intracranial hemorrhage, so this is a more consequential decision. Second, fewer patients will have a recurrent bleeding event (thankfully!) after an intracranial hemorrhage than after a GI bleed. The first issue makes it even more important to get this decision right, but the second one means that it's even harder to balance the benefits and harms – humans aren't very good at accurately balancing small probabilities on the fly.

How did you change the study to account for those differences?

Because the recurrence rate is lower and the consequences are often more severe, you either have to simulate lots more patients or you have to reduce statistical variance in some way. In this paper, instead of simulating quality-adjusted life years, we simulated a measure called "net clinical benefit". That's a more limited measure, and so this paper can't consider, for example, how much worse a person's quality of life is inside the hospital than at home. More importantly, we can't estimate the harm of waiting: quality-adjusted life years decreases if you wait too long to restart anticoagulation, whereas net clinical benefit will asymptotically approach a final daily value.

What conclusions were you able to determine, given the difficult nature of the study?

Even though we can't say what the optimal day to restart anticoagulation is, we can say when it's no longer harmful. That's the bare minimum: we should try to offer our patients meaningful and cost-effective benefit, but we should at least not do them harm. And we can say that anticoagulation is harmful for at least 11 days after a first discharge. Depending on how certain you want to be that anticoagulation will be helpful, you might wait until two months after discharge. Different patients and different physicians have different risk tolerances, and different standards for how helpful an intervention should be. But after an intracerebral hemorrhage, restarting anticoagulation less than 11 days after discharge is probably harmful. We should wait at least that long.

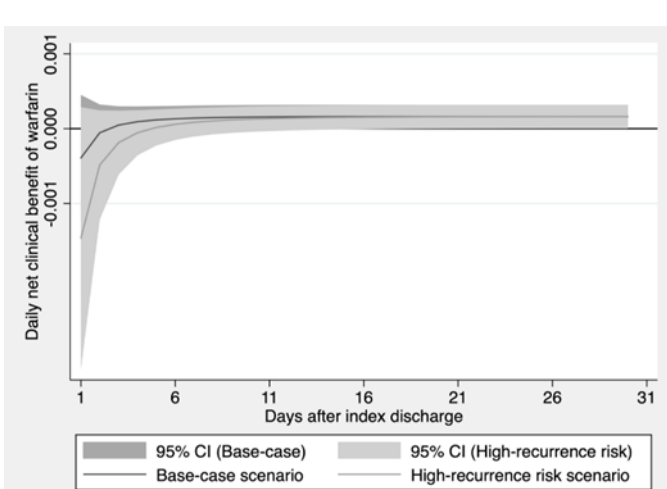


Figure. Net clinical benefit of resuming anticoagulants over time.

What do you think are the next steps in these questions? How can the field make progress?

First, I think there's room for improvement in this particular decision. If we could more precisely estimate the risk of recurrent bleeding, we could personalize when to resume anticoagulation. If we were more certain about how effective anticoagulants are in practice, we could be more confident about the time range. There's room for a good decision-analytic model here, but it would be really helpful to have more data on those two questions. Second, there are other kinds of intracranial hemorrhages. This paper deals with intracerebral hemorrhages, but subdural and subarachnoid hemorrhages cause lots of patient harm, too. Physicians have lots of decisions to make about anticoagulation, without good guidance on how to best balance the benefits and harms. Decisions that have high potential benefit and high potential harm are important to get right.

This study is currently being published in *Vascular Medicine*.

Featured Grant: Testing the Effectiveness of Individualized Disease Prevention for Middle-Aged Adults

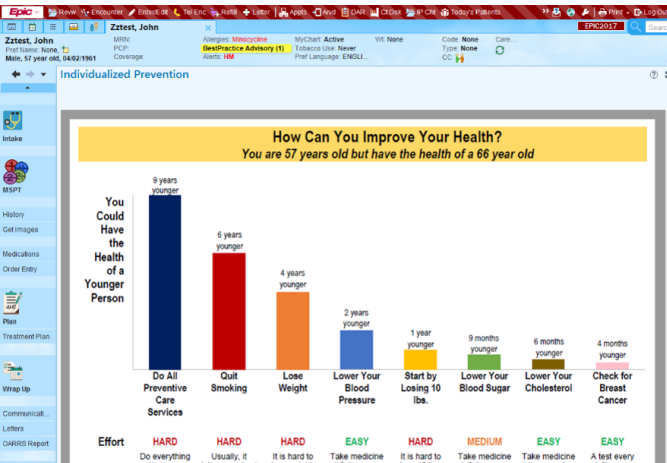


Can you give readers a summary of the proposed study?

This 5-year study plans to adapt and integrate, with electronic health records (EHRs), a decision aid that measures improvement in quality of life associated with adherence to major preventive care services. Additionally, the study will conduct a randomized controlled trial to assess the effectiveness of the decision aid on preventive care utilization among middle-aged adults in six ambulatory clinics. Essentially, the goal is to help middle-aged adults make a more informed decision about the preventive services that are most likely to promote a longer, healthier life with an innovative, personalized decision aid.

Why, in short, is this study so important?

We ask patients to do a lot to improve their health. There are 26 evidence-based primary preventive services for middle-aged adults, and many patients don't have the time, ability or desire to do everything we recommend. Providers are also time-constrained and therefore forced to prioritize, with prevention a lower priority than management of acute and chronic conditions. In preliminary studies, we have found that individualized recommendations can focus preventive care conversations around the services that are most likely to improve a patient's long-term health. Going forward, we believe there is a need for comprehensive investigation on whether shared decision-making around these individualized recommendations can be done accurately and usefully, and how the use of the decision aid in middle-aged adults impacts their potential to live longer, healthier lives.



Example of EHR-integrated decision aid.

How will you do this and what are the long-term goals?

Currently, we are conducting a pilot study to identify preventive services with the greatest impact on life expectancy and patient-provider engagement in shared decision-making. In targeting the main goals mentioned above, we will individualize the benefits and harms of all major primary preventive services for patient age and risk factors, conduct iterative testing on the integrated decision aid with the EHR and, lastly, conduct a randomized trial to test the effectiveness of the decision aid on middle-aged patient behavior. Overall, we will measure preventive service utilization between intervention and control patients. A successful intervention would have potential to maximize health while preventing illness in the middle-aged population, not only at Cleveland Clinic, but because our technology will be scalable, eventually more broadly throughout the United States.

Look out for publications and presentations related to this project in the future.

RECENT PUBLICATIONS

Trends in Prevalence of Nonalcoholic Fatty Liver Disease in US Adults with Prediabetes. Le P., Chaitoff A., Rothberg M.B., Alkhouri N., McCullough A. *Journal of General Internal Medicine.*

Measuring Population Health in a Large Integrated Health System to Guide Goal Setting and Resource Allocation: A Proof of Concept. Stevens E.R., Zhou Q., Nucifora K.A., Taksler G.B., Gourevitch M.N., Stiefel M.C., Kipnis P., Braithwaite R.S. *Population Health Management.*

Physician Empathy and Diabetes Outcomes. Chaitoff A., Rothberg M.B., Martinez K.A. *Journal of General Internal Medicine.*

Patient satisfaction and antibiotic prescribing for respiratory infections by telemedicine. Foster C.B., Martinez K.A., Sabella C., Weaver G.P., Rothberg M.B. *Pediatrics.*

Impact of a system-wide quality improvement initiative on blood pressure control: A cohort analysis. Pfoh E.R., Martinez K., Vakharia N., Rothberg M. *BMJ Quality and Safety.*

Association of Adenoma and Proximal Sessile Serrated Polyp Detection Rates with Endoscopist Characteristics. Sarvepalli S., Garber A., Rothberg M.B., Mankaney G., McMichael J., Morris-Stiff G., Vargo J.J., Rizk M.K., Burke C.A. *JAMA Surgery.*

Creating a Culture of Continuous Improvement in Outpatient Laboratories: Effects on Wait Times, Employee Engagement, and Efficiency. Featherall J., Chaitoff A., Simonetti A., Bena J., Kubiak D., Rothberg M., Roumina K., Hurle N., Henricks W., Yerian L. *American Journal of Medical Quality.*